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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/990,249	11/21/2001	Ing-Ming Chiu	28489/04000	2155

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EXAMINER	
SHUKLA, RAM R	

ART UNIT	PAPER NUMBER
1632	

DATE MAILED: 01/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/990,249	CHIU, ING-MING	
	Examiner	Art Unit	
	Ram R. Shukla	1632	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) *1-11 and 15-36* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *12-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 November 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. Applicant's election without traverse of the invention of group II, claims 12-14 drawn to a DNA construct in Paper filed 10-2-2003 is acknowledged.

2. Claims 1-11 and 15-36 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper filed 10-2-2003.

3. Claims 12-14 are under consideration.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 12-14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims are drawn to a DNA comprising a transgene comprising an active portion of any FGF1B promoter linked to a sequence encoding SV40 large T antigen. This would encompass FGF1B promoter from any species. However, the specification only teaches a human FGF1B promoter and does not teach any other promoter.

In analyzing whether the written description requirement is met for genus claims, it is first determined whether a representative number of species have been described by their complete structure. In the instant case, human FGF1B promoter

is the only species whose complete structure is disclosed. The specification does not provide any disclosure as to what would have been the structure of any other species encompassed by the claimed genus of FGF1B promoters. Next, then, it is determined whether a representative number of species have been sufficiently described by other relevant identifying characteristics (i.e. other than nucleotide sequence), specific features and functional attributes that would distinguish different members of the claimed genus. In the instant case, there are no other characteristics described. In regard to polynucleotides from species other than humans, it is noted that the specification does not provide any disclosure whether these sequences from other species would have had same characteristics or would have had additional characteristics or properties.

Applicants' attention is directed to the decision in *In re Shokal*, 113 USPQ 283 (CCPA 1957) wherein is stated:

> It appears to be well settled that a single species can rarely, if ever, afford sufficient support for a generic claim. In re Soll, 25 C.C.P.A. (Patents) 1309, 97 F.2d 623, 38 USPQ 189; In re Wahlforss et al., 28 C.C.P.A. (Patents) 867, 117 F.2d 270, 48 USPQ 397. The decisions do not however fix any definite number of species which will establish completion of a generic invention and it seems evident therefrom that such number will vary, depending on the circumstances of particular cases. Thus, in the case of small genus such as the halogens, consisting of four species, a reduction to practice of three, or perhaps even two, might serve to complete the generic invention, while in the case of a genus comprising hundreds of species, a considerably larger number of reductions to practice would probably be necessary.

In conclusion, this limited information is not deemed sufficient to reasonably convey to one skilled in the art that Applicant is in possession of FGF1B promoters besides the promoter for the human gene, at the time the application was filed. Thus it is concluded that the written description requirement is not satisfied for the claimed genus.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 12-14 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 12 is vague and indefinite because it recites the term "an active portion". The metes and bounds of the claimed term are not clear.

Claim 13 is vague and indefinite because it recites "-540 to +30" without a reference to a particular sequence. It is not clear that any sequence encompassed by the claimed invention will have the same number of sequences and therefore it is unclear whether the claimed nucleotide numbering will represent the same nucleotides in any sequence.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alam et al (The Journal of Biological Chemistry. Vol. 271:30263-30271, 1996) or Ray et al (The Journal of Biological Chemistry. Vol. 272: 7546-7555, 1997) in view of Takahashi et al (Exp. Anim. 48:255-261, 1999) and Perraud et al (Oncogene Vol. 7:993-997, 1992) and Ausubel et al. Short Protocols in Molecular Biology. 3rd edition 1992, page 9-28 - 9-30, John Wiley and Sons).

Claims are drawn to a DNA comprising a transgene comprising an active portion of any FGF1B promoter linked to a sequence encoding SV40 large T antigen. The dependent claims recite certain nucleotides of the promoter or that the SV40 T antigen encoding sequence comprises an intron.

At the time of the invention, Alam et al and Ray et al teach the characterization of the FGF1B promoter (see the entire articles). Alam et al characterizes the expression pattern of the promoter and notes that the expression of FGF1b was in phylogenitically older brain regions, which are involved in information process and that the promoter has a role in neuronal maturation rather than in neurogenesis. Figure 5 teaches the nucleotide sequence of the promoter. The article concludes that the promoter expression is specific to brain and therefore its expression mechanism is distinct from those in other tissues (see the last paragraph on page 30270 continued on page 30271). Ray et al provides a more detailed analysis of the promoter region and discusses part of the promoter that interacts with proteins for the activation of the promoter (see the entire article). Ray et al describes the minimal cis-acting sequence that can form DNA protein complex using FGF1B promoter driven expression constructs. None of these arts teaches a DNA construct comprising a transgene comprising an FGF1B promoter linked to SV40 large T antigen.

Takahashi et al teaches rat cell lines in which expression of SV40 T antigen was under the control of a promoter and the cell lines were isolated from transgenic rats that were produced by integrating the construct comprising SV40 promoter driving the expression of SV40 large T antigen (see the abstract and the rest of the articles). The art also teaches that to make a cell line, it is advantageous to express immortalizing oncogenes such as large T antigen in the cells (see the introduction on page 255 continued on page 256 and the discussion). Perraud et al teaches the construction of vectors comprising a promoter driving the expression of SV40 long T antigen to study the potential oncogenesis associated with tissue-specific activity of the promoter for CFTR gene.

At the time of the invention, it would have been obvious to an artisan of ordinary skill to modify the vectors of Ray et al or Alam et al by replacing the reporter gene with the SV40 T antigen with a reasonable expectation of success. An artisan would have been motivated to make such constructs because it would have allowed to study the brain specific expression of the FGF1B promoter and

make cell lines or transgenic mice or rats which could provide in vivo model for studying the promoter function.

Regarding claim 14, it is noted that it was routine in the art to include an intron, such as a SV40 intron, in an eukaryotic expression vector for an efficient expression of a sequence of interest (for example, see figure 9.7.1 see Short Protocols of Molecular Biology, page 9-29).

10. No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ram R. Shukla whose telephone number is (703) 305-1677. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:00 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Reynolds, can be reached on (703) 305-4051. The fax phone number for TC 1600 is (703) 703-872-9306. Any inquiry of a general nature, formal matters or relating to the status of this application or proceeding should be directed to the William Phillips whose telephone number is (703) 305-3413.

Please note that effective January 13, the offices for Examiner Shukla, SPE Reynolds and LIE William Phillips will move to the new USPTO location in Alexandria, VA and their phone numbers will change. The new phone numbers will be as follows:

Ram Shukla: **(571) 272-0735**

Deborah Reynolds: **(571) 272-0734**

William Phillips: **(571) 272-0548**

Ram R. Shukla, Ph.D.
Primary Examiner
Art Unit 1632

RAM R. SHUKLA, PH.D.
PRIMARY EXAMINER